



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/224,637	12/31/1998	YUVAL OFEK	E0295/7080	3449

7590 01/17/2003

MATTHEW B LOWRIE
WOLF GREENFIELD & SACKS
600 ATLANTIC AVE
BOSTON, MA 02210

EXAMINER

VITAL, PIERRE M

ART UNIT PAPER NUMBER

2188

DATE MAILED: 01/17/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/224,637

Applicant(s)

OFEK ET AL.

Examiner

Pierre M. Vital

Art Unit

2188

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 December 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 July 1998 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. This Office Action is in response to applicant's communication filed December 10, 2002 in response to PTO Office Action mailed September 5, 2002. The Applicant's remarks and amendments to the claims and/or the specification were considered with the results that follow.
2. Claims 1-28 have been presented for examination in this application. In response to the last Office Action, no claims have been amended. No claims have been canceled. Claims 26-28 have been added. As a result, claims 1-28 are now pending in this application.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily

Art Unit: 2188

published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

4. Claims 11, 12, 14, 16-24, 27 and 28 are rejected under 35 U.S.C. 102(e) as being anticipated by Kullick et al. (US5,751,997).

As per claim 11, Kullick discloses a plurality of heterogeneous host computers [Figure 1, elements 18; col. 4, line 66-col. 5, line 2]; a plurality of primary storage devices to receive and store data in the devices [Figure 1, elements 14]; each primary storage device being associated with at least one of the host computers [column 3, lines 3-5]; a secondary storage device to receive and store data in the device coupled to a plurality of the primary storage devices [column 1, lines 32-34], the secondary storage device being configured to receive backup data from each of the host computers [column 3, lines 7-10].

As per claim 12, the use of cached disk array is well known in the state of the art.

As per claim 14, Kullick discloses a secondary storage device including a plurality of ports coupled to the network to send and receive data on the network in parallel [column 4, lines 54-63].

As per claim 16, Kullick discloses transferring a first logical object from one of the primary storage devices directly to the second storage device directly over a first connection [column 3, lines 3-10].

As per claims 17, Kullick discloses transferring a second logical object from one of the primary storage devices directly to the second storage device directly over a second connection [column 3, lines 14-24].

As per claim 19, Kullick discloses the claimed invention as detailed per claims 1, and 16 above. Kullick further discloses automatically establishing a first connection through a network from a first one of the primary storage elements *{i.e., primary storage device contacts secondary storage device}*, which serves as the primary storage for a CPU of a host computer coupled thereto *{i.e., computer device 18 may be relocated, thus primary storage device serves as primary storage}*, to the secondary storage element to transfer a first logical object to the secondary storage element [column 11, line 53 - column 11, line 20].

As per claims 20, Kullick discloses transferring a second logical object from one of the primary storage devices directly to the second storage device directly over a second connection [column 3, lines 14-24].

Claim 21 is rejected as per claim 14 above.

Claim 22 is rejected as per claim 11 above.

As per claim 23, Kullick discloses automatically establishing a path through a network [column 3, lines 3-13; column 4, lines 45-49].

As per claims 18 and 24, the use of a tape library unit is well known in the state of the art.

As per claim 27, Kullick discloses the claimed invention as detailed per claim 11 above. Kullick further discloses a secondary storage device configured to receive backup data from at least one of the primary storage devices without involving the host domain *{i.e., primary storage device initiates backup to secondary and host may be relocated}* [column 11, lines 12-20].

Art Unit: 2188

As per claim 28, Kullick discloses the claimed invention as detailed per claim 19 above. Kullick further discloses a transferring a first logical object from a first one of the primary storage elements directly to a secondary storage device without involving the host domain *{i.e., primary storage device initiates backup to secondary and host may be relocated}* [column 11, lines 12-20].

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-8, 10 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kullick et al. (US5,751,997) and Periasamy et al. (US6,065,062).

As per claim 1, Kullick discloses a host domain including a host computer [Figure 1, element 18]; a storage domain, coupled to the host domain, the storage domain comprising: a plurality of primary storage devices for the host domain, at least one of the primary storage devices to provide storage for the host computer *{i.e., computer device 18 may be relocated, thus primary storage device serves as primary storage}* [Figure 1, element 14]; a secondary storage device [Figure 1, element 16]; a network coupled to the plurality of primary storage devices and to the secondary storage device

Art Unit: 2188

to permit one of the primary storage devices to access the secondary storage device through the switched network [Figure 1, element 12; column 4, lines 45-53].

However, even though Kullick discloses a communication network, the reference fails to specifically teach that the use of a switched network as recited in the claim.

Periasamy discloses the use of a switched network connecting primary and secondary storage devices for data backup [col. 1, lines 10-22].

It would have been obvious to one of ordinary skill in the art, having the teachings of Kullick and Periasamy before him at the time the invention was made, to modify the system of Kullick to include the use of a switched network connecting primary and secondary storage devices for data backup because it would have provided communications management between devices by connoting a source of or target for data that typically does not provide routing or other services to other computers in the network [col. 2, lines 27, col. 1, lines 20-22].

As per claim 2, Kullick discloses a primary storage device coupled directly to a secondary storage device [column 3, lines 5-7].

As per claim 3, the use of cached disk array is well known in the state of the art.

As per claim 4, Kullick discloses a secondary storage device including a plurality of ports coupled to the network to send and receive data on the network in parallel [column 4, lines 54-63].

As per claim 6, Kullick discloses a plurality of heterogeneous host computers [Figure 1, elements 18; col. 4, line 66-col. 5, line 2]; a plurality of primary storage

Art Unit: 2188

devices to receive and store data in the devices [Figure 1, elements 14]; each primary storage device being associated with at least one of the host computers [column 3, lines 3-5]; a secondary storage device to receive and store data in the device coupled to a plurality of the primary storage devices [column 1, lines 32-34], the secondary storage device being configured to receive backup data from each of the host computers [column 3, lines 7-10].

As per claim 7, Kullick discloses transferring a first logical object from one of the primary storage devices directly to the second storage device directly over a first connection [column 3, lines 3-10].

As per claim 8, Kullick discloses transferring a second logical object from one of the primary storage devices directly to the second storage device directly over a second connection [column 3, lines 14-24].

As per claim 10, the use of a tape library unit is well known in the state of the art.

As per claim 26, Kullick discloses the claimed invention as detailed per claim 1 above. Kullick further discloses a primary storage device accessing a secondary storage device without involving the host domain *{i.e., primary storage device initiates backup to secondary and host may be relocated}* [column 11, lines 12-20].

As per claim 5, the combination of Kullick and Periasamy fail to teach a secondary storage device comprising data movers as recited in the claims. Official Notice is taken that both the concept and the advantages of providing for storage devices, which include data movers, are well known and expected in the art.

It would have been obvious to one of ordinary skill in the art to have included the data movers in Kullick and Periasamy as these data movers are known to provide a means for communication between the backup devices and the network.

7. Claim 15 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kullick et al. (US5,751,997)

As per claims 15 and 25, Kullick fails to teach a secondary storage device comprising data movers as recited in the claims. Official Notice is taken that both the concept and the advantages of providing for storage devices, which include data movers, are well known and expected in the art.

It would have been obvious to one of ordinary skill in the art to have included the data movers in Kullick as these data movers are known to provide a means for communication between the backup devices and the network.

8. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kullick et al. (US5,751,997) and Kopper (US5,535,381).

As per claim 13, Kullick discloses the claimed invention as detailed above in the previous paragraphs. However, Kullick does not specifically teach means for forming an abstract block set from a logical object stored in one of the primary storage devices as recited in the claims.

Kopper discloses means for forming an abstract block set from a logical object stored in one of the primary storage devices [col.2, line 54 - col. 3, line 54].

It would have been obvious to one of ordinary skill in the art, having the teaching of Kullick and Kopper before him at the time the invention was made to modify the system of Kullick to include means for forming an abstract block set from a logical object stored in one of the primary storage devices as taught by Kopper because it would have facilitated communication between the computer and its disk storage device by mapping the file system into corresponding logical addresses on a logical disk [col. 2, lines 50-60] as taught by Kopper.

9. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kullick et al. (US5,751,997) and Periasamy et al. (US6,065,062) and further in view of Kopper (US5,535,381).

As per claim 9, Kullick discloses the claimed invention as detailed above in the previous paragraphs. However, Kullick does not specifically teach means for forming an abstract block set from a logical object stored in one of the primary storage devices as recited in the claims.

Kopper discloses means for forming an abstract block set from a logical object stored in one of the primary storage devices [col.2, line 54 - col. 3, line 54].

It would have been obvious to one of ordinary skill in the art, having the teaching of Kullick and Periasamy and Kopper before him at the time the invention was made to modify the system of Kullick and Periasamy to include means for forming an abstract block set from a logical object stored in one of the primary storage devices as taught by Kopper because it would have facilitated communication between the computer and its disk storage device by mapping the file system into corresponding logical addresses on a logical disk [col. 2, lines 50-60] as taught by Kopper.

Response to Arguments

10. Applicant's arguments with respect to claims 1-8 and 10 have been considered but are moot in view of the new ground(s) of rejection.

11. Applicant's arguments filed December 10, 2002 have been fully considered but they are not persuasive. As to the remarks, Applicant asserted that:

(a) Kullick does not teach or suggest a heterogeneous plurality of host computers.

Examiner respectfully traverses applicant's arguments. Examiner would like to point out that Kullick discloses that the computer device 18 can be any of a various types of or specialized computer devices (see column 4, lines 66-67). Additionally, Kullick has not limited his computer devices 18 to a specific type of computing device. Therefore, computer devices 18 cover all varieties of computing devices as disclosed by Kullick.

Art Unit: 2188

(b) The primary storage devices 14 of Kullick do not serve as primary storage for each of the computer devices 18, rather as backup storage.

Examiner respectfully traverses applicant's arguments. Examiner would like to emphasize that the primary storage devices 14 of Kullick perform the same function as those claimed by Applicant. Typically, data is copied first from a computer to a primary storage device and subsequently from the primary storage to a lower cost, higher density secondary storage device as is well known in the art. Therefore, data is backed up from the computer to the primary storage device to the secondary storage device know as "backing up the system". The primary purpose of the primary storage device is not to serve as a backup device. Rather, the primary storage device is used to control the transfer of data to the secondary storage device through the network. As a result, the host is released of the burden of writing the data to a secondary storage system, available host bus bandwidth is increased and bus contention is minimized.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Applicant is required under 37 C.F.R. § 1.111 (c) to consider these references fully when responding to this action. The documents cited therein teach switched network, and storage backup.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Pierre M. Vital whose telephone number is (703) 306-5839. The examiner can normally be reached on Mon-Fri, 8:30 am - 6:00 pm, alternate Friday off.

Art Unit: 2188

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matt Kim can be reached on (703) 305-3821. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 746-7239 for regular communications and (703) 746-7238 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-9000.

Reginald G. Bragdon

REGINALD G. BRAGDON
PRIMARY EXAMINER

Puv

Pierre M. Vital
January 13, 2003